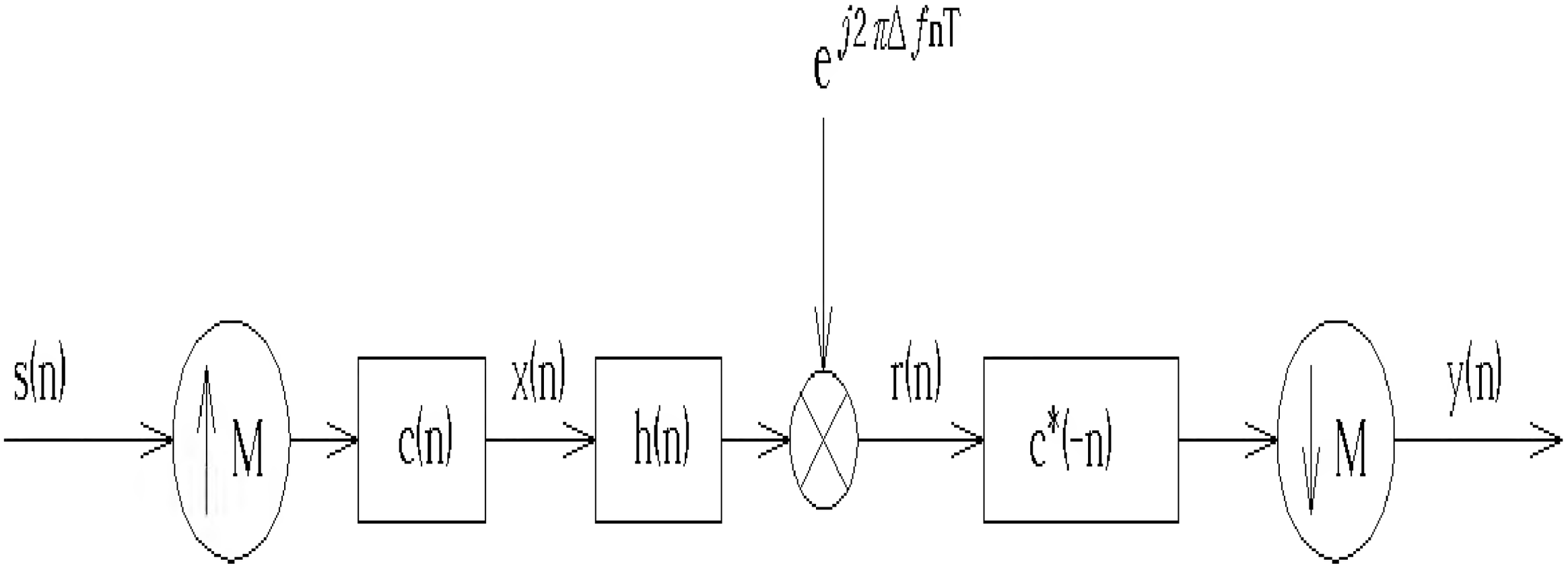


Fig. 1

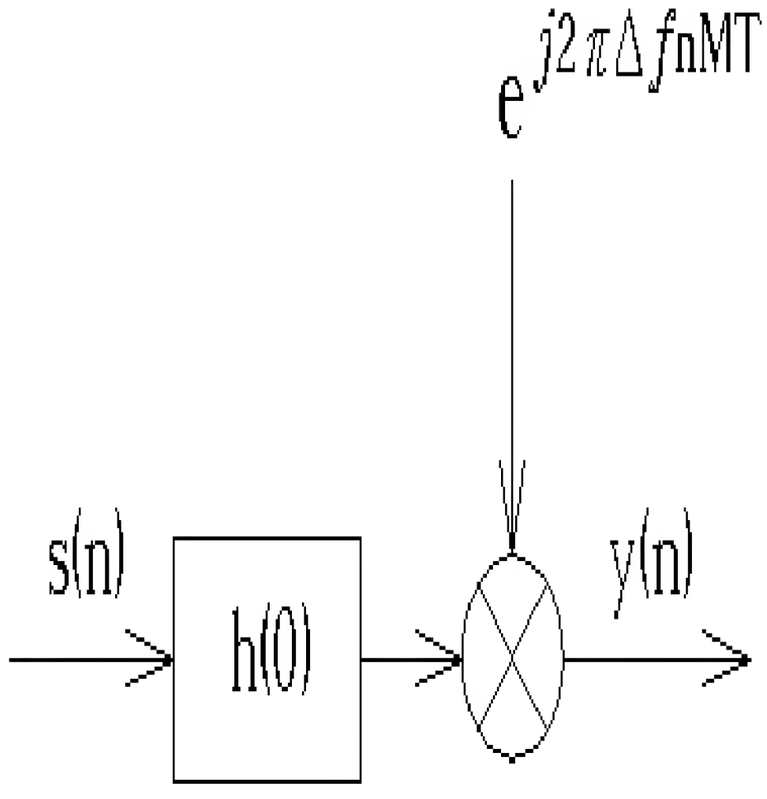


Fig. 2

Equ.1 $$x(n) = \sum_{k} s(k)\, c\,(n - MK)$$

Equ.2 $$y(n) = s(n)\, h\,(0)\, e^{j2\pi \Delta f nMT}$$

Equ.3 $$P_n = y(n+1)\, y^*(n)$$

$$= \pm \left| s(n) \right|^2 \left| h(0) \right|^2 e^{j2\pi \Delta f MT}$$

Equ.4 $$\Delta f = \arg\left\{ \operatorname{sign}\left\{ \operatorname{Re}\left\{ P_n \right\} \right\} \bullet P_n \right\} / (2\pi MT)$$

Equ.5 $$\Delta f = \arg\left\{ \sum_{n} \operatorname{sign}\left\{ \operatorname{Re}\left\{ P_n \right\} \right\} \bullet P_n \right\} / (2\pi MT)$$

Fig. 3

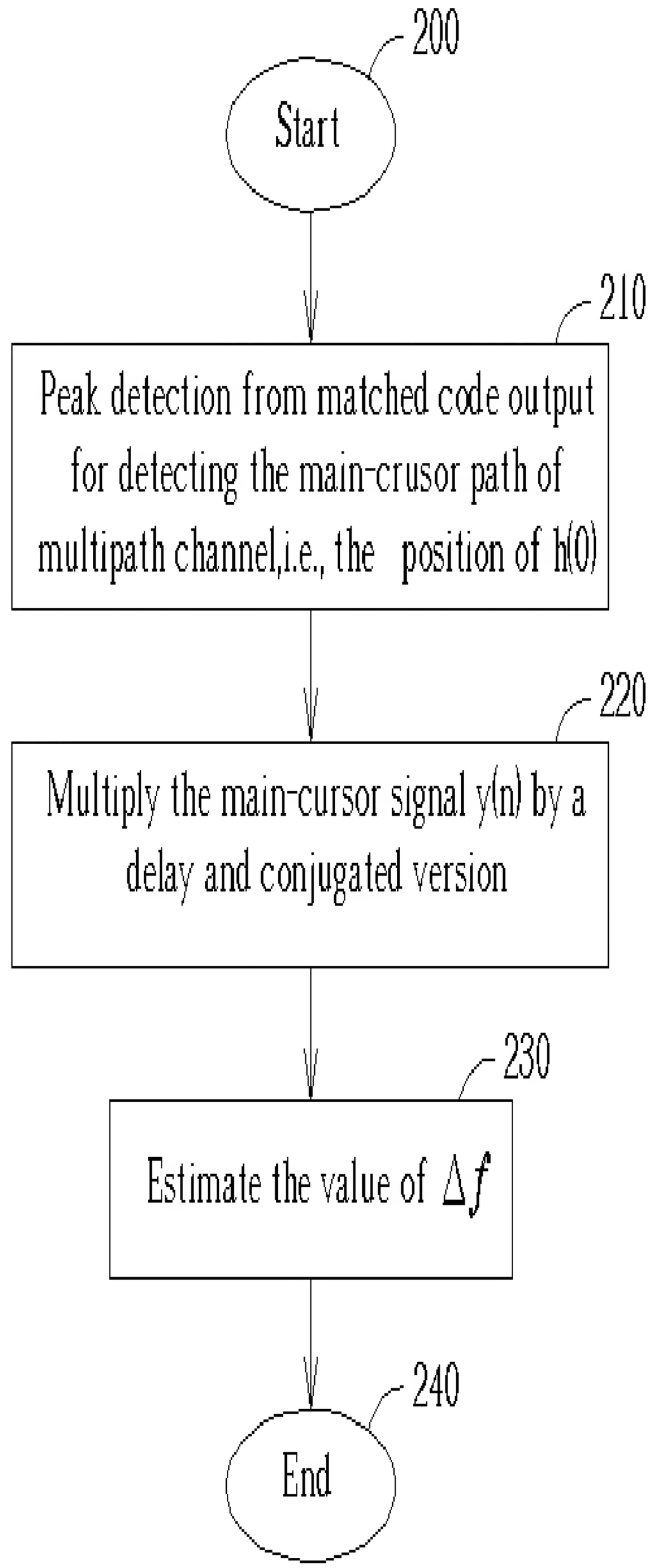
200
Start
210
Peak detection from matched code output for detecting the main-crusor path of multipath channel,i.e., the position of h(0)
220
Multiply the main-cursor signal y(n) by a delay and conjugated version
230
Estimate the value of $\Delta f$
240
End

Fig. 4

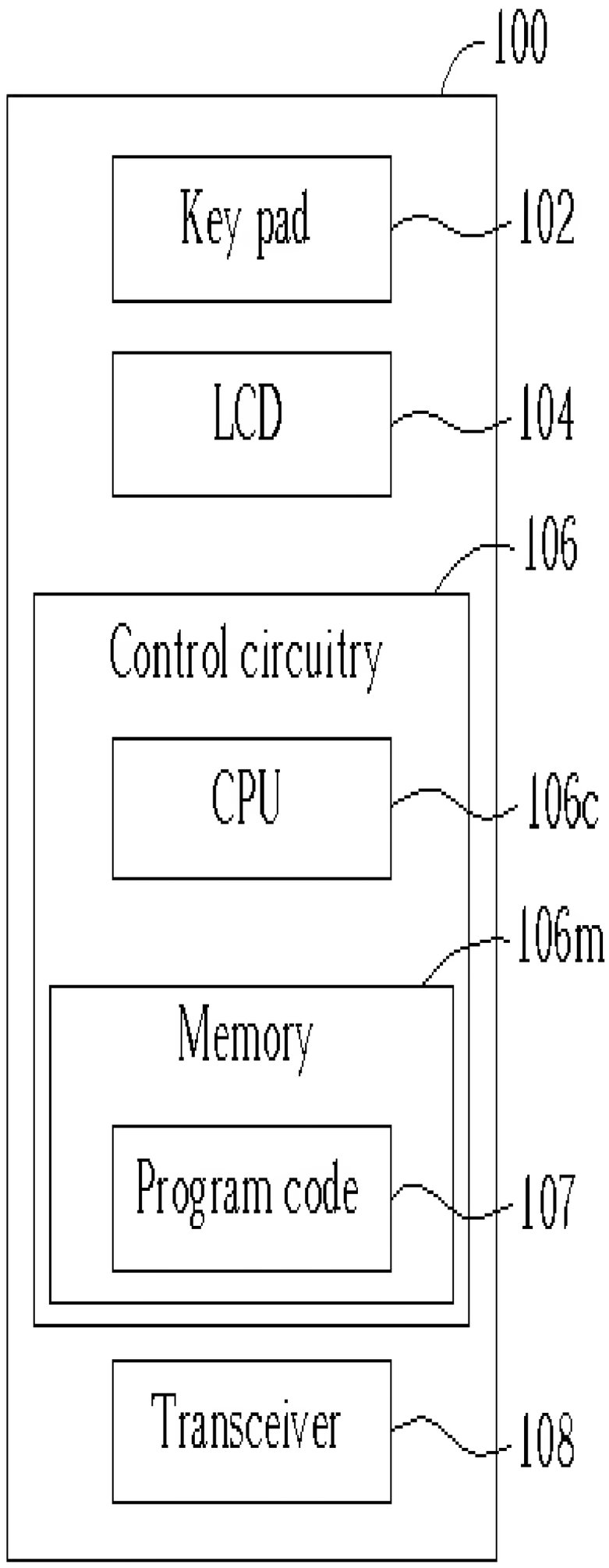
100
Key pad
102
LCD
104
106
Control circuitry
CPU
106c
106m
Memory
Program code
107
Transceiver
108

Fig. 5